خير الناس أنفعهم للناس

تجميعات

ALKALOIDS

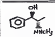
BY/A.H.A

لا تنسونا من صالح دعائكم
بظهر الغيب

Tyrosine ← derived From

I Phenylalkylamine alkaloids

① Ephedra alkaloids



(L-ephedrine)

in → ephdra herb

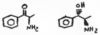
→ volatile, sol. in H_2O *

→ no ppt ē mayer's (only ē C. soln)

NB/ – $CHCl_3$ not used in extract? as ephedrine in aged chloroformic soln 'or' by evaporn → it react ē ephedrine and Forming phosgene Toxic gas.

Uses:
① anti asthmatic
② Nasal decongestant
③ Sympathomimetic

② Khat alkaloids



(Cathinone) (Cathine)

in → Khat leaves

① CNS stimulant (Hallucinogenic)
→ Cause Habitutn and addictn

③ Peyote alkaloids

(mescaline)

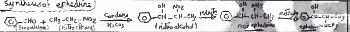
in → Peyote

→ Sol. in H_2O & organic solvent

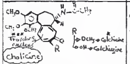
① Hallucinogenic & psychomimetics
→ not Cause Habitutn and addictn

① Chen's Test
+ $CuSO_4$ + NaOH → Violet color —ether→ purple color in ether layer

synthesis of ephedrine



④ Colchicum alkaloids

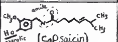


→ W. base !
→ Colored alkaloids (yellow)
→ Sol. in H_2O
—H^+ / OH^-→ Colchiceine + CH_3

① Treatment of Gout *
② plant hormone

Colchicine + $FeCl_3$ → Red color
colchiceine + $FeCl_3$ → olive green color.

⑤ Capsicum alkaloids



(Capsaicin)

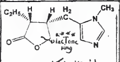
→ phenolic amide alkaloids
→ pungent alkaloids (pungency destroyed by $KMnO_4$)
→ insol. in H_2O

① Rubefacient (Counter-irritant)
② antirheumatic

+ $FeCl_3$ → green Color

III Imidazole alkaloids

① pilocarpine



→ non volatile liquid
→ Sol. in H_2O, $CHCl_3$
→ insol. in ether
→ lactone alkaloids

① Miotic = cholinergic effect
② TT of glucoma

Helch's Test
+ H_2O_2 + $K_2Cr_2O_7$ → Violet color → extract ē organic solvent → yellowish brown (in aqueous layer)

II Pyridine alkaloids

i (pyridine) only — Trigonelline

(Trigonelline)

in → Foenugreek seed

[redacted]

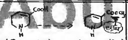
① Hypoglycemic

[redacted]

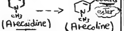
[redacted]

① Seeds —defatting→ Mark → ① H_2SO_4 ② ether ③ Mayer's reagent → Total alk. —H_2S→ Free base

ii Tetrahydro pyridine alk. — Areca nut alkaloids



(Guvacine) (Guvacoline)



(Arecaidine) (Arecoline)

in → Areca nut

① Anthelmentic
② CNS stimulant (↓ dose)

① + K Ferricyanide → Blue
② + K Ferrocyanide → green

① aq soln of Areca + Dragendorff reagent → Red ppt → Filter wash → (R) —$BaCO_3$ Filter→ (F) —NH_4OH→ Free Base

iii (pyridine) + other N base — Tobacco alkaloids

(nicotine) (nor nicotine) (anabasine)

← Volatile liquid →

(nicotaine (non vol liquid)) (nicotelline (non vol. solid))

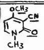
in → Tobacco leaves

① Insecticide
② Toxin in ↑ dose (Resp. depress)

① + PDMAB → Rose red Color

Isolation lec. 2 → Page 5

iv Pyridone alkaloids — Ricinine



(Ricinine)

in → Castor seed

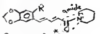
① Poisonous (CN) (Toxic alkaloid)

① + $KMnO_4$ —Δ→ decolorizn

—

V Piperidine alkaloids

a pepper alkaloids



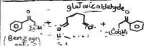
R → H → piperine
→ OCH₃ → chavicine

in → B. pepper Fruit
→ W. base (amide gp)

① Condiment
② Rubifacient

① + H_2SO_4 → red Color

synthesis of lobeline



b Conium alkaloids

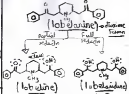
(Coniine)

in → Hemolock Fruit (Conium)
→ Volatile, liquid

① local analgesic

① + Na nitroprusside → Red Color —acetaldehyde→ violet Color

c lobelia alkaloids



→ monooxime Form, → monoester Form (lobeline)
→ diester Form (lobelanidine)

in → lobelia herb

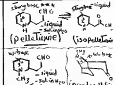
① Expectorant
② Bronchodilator

① + Marqui's → red Color

Isoln of lobeline

lobeline + $CHCl_3$ → lobeline HCl

d Pomegranate alkaloids



in → Pomegranate

① anthelmintic
② Teniifuge

—

Isolatn of Pomegranate alk

lec. 3 → Page 10

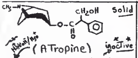
IV Tropane alkaloids

(Pyrrolidine + piperidine) ⇐ IV Tropane alkaloids
ⓐ derived from → L-ornithine
ⓑ optically inactive ⇌ Racemic (compensated)
ⓒ ester alkaloids

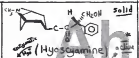
V Quinoline alkaloids

A Solanaceous alkaloids (ester)

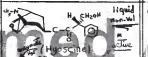
i Atropine ⇐ (during extraction (Racemization)) **ii Hyoscyamine** — **iii Hyoscine**



Tropine base + dl-Tropic ā



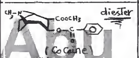
Tropine base + L-Tropic ā



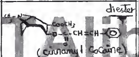
Scopine base + L-Tropic ā

B Coca alkaloids

i Cocaine — **ii Cinnamyl Cocaine**

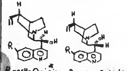


(Ecgonine base + Benzoic ā)



(Ecgonine base + Cinnamic ā)

A Cinchona alkaloids



Uses

Solanaceous leaves →

① Anticholinergic effect = Mydriatic = Parasympatholytic
② Antispasmodic → Smooth muscle relaxant
③ ↓ secretion ④ Antidote for organophosphorous insecticides

(Hyoscine): ① Sedative ② CNS depressant

Coca leaves →

① Local anesthetic (for dentistry)
② CNS stimulant
NB / → Cocaine cause addiction (not antidote for I)

(Cinnamyl cocaine): —

← Cinchona bark →

① Antimalarial → Quinine
② Antiarrhythmic → Quinidine (Cardiac depressant)

Tests

① Vitali's morin's Test (+ve for all)
alk. + Fuming HNO_3 → Ⓡ → (Cooling, 5% alc. KOH) → Violet color

② Gerrard's Test
alk. + $HgCl_2$/ethanol → Red color (Hyoscyamine)
→ White ppt (Hyoscine)

③ Shaer's Test → green color

④ PDAB Test → Red color → (cool) → cherry red color

Cocaine:
① + $KMnO_4$ → Violet aggregates (no decolorization)
② Alk. + PDMAB → red color

Cinnamyl cocaine:
① + $KMnO_4$ → decolorization + Benzaldehyde odor

Cinchona:
① Fluorescence Test (Quinine / Quinidine)
alk. + oxygenated acids → Blue Fluorescence (H_2SO_4 / HNO_3)
② Thalloquin Test (Quinine / Quinidine)
alk. + Br_2/H_2O + NH_4OH → emerald green color
③ Herpathite test (Quinine, Cinchonidine)
alk. glacial acetic a + alc. + c. H_2SO_4 + I_2 → iodosulphate crystals of ...

Properties

① Strong base (Atropine)

① Strong base ② Hyoscyamine → (Δ / $NaOH$) → Tropine base + dl Tropic ā

① Weak base ② Hyoscine → (Δ / $NaOH$) → Scopoline + Tropic ā

لست الأفضل ولكن لي أسلوبي .. سأظل دائماً أتقبل رأي الناقد والحاسد فالأول يصحح مساري والثاني يزيد من إصراري

Quan. determination of i, ii, iii

① Total alkaloids by acid base titration by using HCl Ⓐ
② % of each alkaloids
mix → ($NaHCO_3$, ether)
→ ether layer (Hyoscine) → dissolve in alcohol and titration ē acid Ⓑ
→ aq. layer (Atropine, Hyoscyamine) → NH_4OH, $CHCl_3$, evap., 90% alc. (Hyoscyamine) measured by ppl Ⓒ

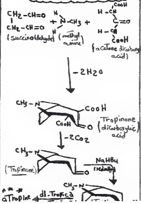
∴ Atropine = A − (B + C)

NB Artificial Tropeine deriv.

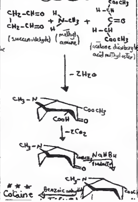
Isolation

Plant → (95% ethanol, evap.) → Ⓡ → (HCl, $CHCl_3$)
→ $CHCl_3$ layer (impurities)
→ acidic extract → ($NaHCO_3$, ether)
→ ether layer (Hyoscine)
→ aq. layer (Atropine / Hyoscyamine HCl) → (NH_4OH, $CHCl_3$, evap.) → Ⓡ → oxalic ā (acetone / ether)
→ Insoluble (Atropine oxalate)
→ Soluble (Hyoscyamine oxalate)

Synthetic of Atropine



Synthetic of Cocaine



Semisynthesis of Cocaine

Coca leaves extract → (HCl, ether)
→ ether layer (impurities)
→ aq. layer (alk. Salt as HCl salt) → HCl → CH_3OH + Ecgonine base + esterifying acids → Filter
→ Ⓡ (Free ā)
→ Ⓕ (ecgonine HCl) → ① Benzoylation (Benzoic anhydride) ② Methylation (CH_3I, $NaOCH_3$) → Cocaine

Isolation (Cinchona)

Pd bark → ① $CaOH_2$ + $NaOH$ ② $NaOH$ → Free bases alkaloids → H_2SO_4 → Bisulphate alkaloids → ① Na_2CO_3 ② Filter
→ Ⓡ (Quinine monosulphate)
→ Ⓕ (Quinidine, Cinchonine, Cinchonidine monosulphate) → $NaOH$, ether
→ ether layer → HCl, Na-K-Tartrate (Rochelle's salt) → Filter → Ⓡ (Cinchonidine), Ⓕ (Quinidine)
→ aq. layer (Cinchonine, ether insoluble)

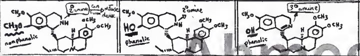
3

VI Isoquinoline alkaloids

- Benzyl isoquinoline gp → Papaverine
- Phenyl ethyl amine gp → Narceine
- Phenanthrene (Morphinan) gp → Morphine & codeine

A Ipecacuanha alkaloids

① Emetine ← Methyln — ② Cephaline ← Reductn — ③ Psychotrine



← Insol. in H_2O (due to Bulky structure) →

①Insol. in NaOH | ← ① sol. in NaOH →

← ② sol. in ether → | ② Insol. in ether**

Uses
① expectorant (crude drug)
② Antiamoebic effect (TTT of amoebic dysentry) → (emetine HCl)
③ emetic
④ anti viral & anti tumor

Test
① alk-soln in HCl + Ca. Hypochlorite → orange color → Fades by HCl (in case of Emetine)
② Froehd's reagent Test → Emetine and cephaline → dirty green color
→ Psychotrine → Pale green color.

اللهم دبر لنا فإنا لا نحسن التدبير آمين

Isolatn of Ipeca alkaloids مهمة موت

① Pd —(① alcohol ② pb acetate ③ Filter)→ F —(① evap. ② dil HCl ③ Filter)→ F (alkaloidal salt as HCl salt)

—(① NaOH ② ether)→
- aqeous layer (Psychotrine, cephaline) phenolic alkaloids
  —(① HCl ② NH_4OH ③ ether)→
  - aqeous layer (Psychotrine) ether insoluble
  - ether layer (Cephaline) ether soluble
- ether layer (Emetine) non phenolic alkaloids

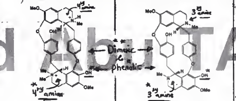
Notes on opium

Natural opoids
① morphine
② codeine
③ Thebaine
From ŵ we can Form ! Following

Semisynthetic opoids
① Nalbuphine → analgesic (in children)
② Naloxone → opoid antagonist
③ Buprenorphine → opoid agonist-antagonist (Partial agonist)
④ Etorphine → opoid agonist (> Morphine)

B Curare alkaloids (derived From Tyrosine)

① d-Tubocurarine | ② Curine



d-Tubocurarine: → Sol. in H_2O; → d-Form (active) الوحيد وده استثناء من القاعدة الأساسية

Curine: → insol. in H_2O

Both in → Curare extract

USES ① skeletal muscle relaxant (Tubocurarine أكثر القلويدات) ② antidote For strychnine Poisoning & Tetanus Poisoning

Test + $FeCl_3$ → Faint green color → green color

Isolatn
① aq. extract of Curare + NH_4OH → R (curine) / F (Tubocurarine) —Alc. $HgCl_2$→ ↓ Tubocurarine (as double cpd) —H_2S Filter→ F (Tubocurarine HCl)

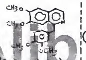
Isolatn of opium alkaloids السنة مهمة كويس

opium —(① Conc. ② H_2O ③ Filter)→ F (alkaloidal salt as HCl salt)

—(① NaOH ② Filter)→
- phenolic OH: F (Morphine, codeine, Narceine)
  —$CHCl_3$→
  - ether layer (Codeine)
  - aq. layer (Morphine, Narceine) (as phenate) (as Na salt)
    —(① H^+ ② OH^- (NH_4OH)* ③ Filter)→
    - F (Narceine)
    - R (Morphine)
- R ** (Papaverine, narcotine, Thebaine)
  —(① dil alcohol ② acetic a ③ Boiling H_2O ④ Filter)→
  - F —NH_4OH→ (Thebaine)
  - R —(① Boiling H_2O ② oxalic a ③ Filter)→
    - F (Papaverine) (oxalate ...)
    - R (Narcotine)

C opium alkaloids

① Papaverine (derived From Tyrosine)



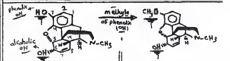
(Papaverine)

→ optically inactive
→ weak base
→ Insol. in H_2O
مش فعالة

Uses
① antispasmodic (spasmolytic)
② Vasodilator → Bronchodilator**

Test Warren's Test → + $KMnO_4$ + Marquis reagent → blue color → green

② Morphine | ③ codeine



② Morphine	③ codeine
→ insol. in H_2O, ether, $CHCl_3$	→ Sol. in H_2O, ether, $CHCl_3$
→ phenolic & alcoholic	→ non phenolic & alcoholic
→ ppted (From its acidic soln) by NH_4OH	→ Sol. in NH_4OH (due to Formn of codeine ammonia complex)

Uses

Morphine	Codeine
① Narcotic analgesic For → Cancer pain, Traumatic pain	① Narcotic analgesic (↓)
② TTT of Heroin addictn	② antitussive

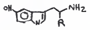
NB/ Morphine —Δ / HCl (−CH_3)→ apo morphine (less effect)
Morphine —acetyln→ Heroin (diacetyl morphine)

Structure activity Relationship (SAR) of Morphine

↑ activity by:	↓ activity by:
① acetyln → Heroin ↑	① Methyln of phenolic (OH) → Codeine ↓
② Reductn, methyln, oxidn or: elimination of OH at C_6	② Dehydratn by Δ/HCl (−CH_3) → apomorphine
③ Introductn of OH at C_{14}	③ opening of N-Containing ring
④ ~ ~ ~ CH_3 at C_5	④ ~ ~ ~ 4,5 oxygen bridge
⑤ Replacment of (N-CH_3) by phenyl ethyl gp	⑤ Demethyln of N-CH_3 → NH (normorphine)
	⑥ Conversn of ...

VII Indol alkaloids $\xrightarrow[\text{From}]{\text{derived}}$ Tryptophan

① Serotonin alkaloids



R → H → Tryptamine
R → COOH → Tryptophan

Source: in → Mammalian brain

Properties:
① Skin irritant $\xrightarrow{\text{due to}}$ Histamine release
② ↑ conc of 5-OH indole acetic ā intestinal tumor ← indicate (serotonin metabolite)

Tests:
① + Marqui's reagent* → Brown color
② + Vitali's reagent → greyish green color / Brown color

② Psilocin & Psilocybin alkaloids

R = OH → Psilocin
R = OPO₃H₂ → Psilocybin
Psilocin $\xrightarrow{\text{Phosph.}}$ Psilocybin

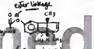
Source: in → Psilocybe Fungus

Properties:
Psilocin	Psilocybin
① Insol. in H_2O	① Sol. in H_2O
② Sol. in alcohol	② Insol. in $CHCl_3$

Uses: ① Hallucinogenic* & Narcotic

Tests:
① Psilocin + Marqui's reagent → greenish brown color
Psilocybin + Marqui's reagent → orange color

③ Calabar bean alkaloids



(eserine) = (physostigmine)

Source: in → Calabar bean

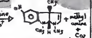
Properties:
① Insol. in H_2O (3°N)
② Sol. in $CHCl_3$, alcohol, Benzene

Uses:
① Miotic* (cholinergic)
② ↑ gland secretion

Tests:
① + NaOH → red color (Rubreserine)
② Eserine-Blue Test:- + strong NH_3 soln → yellowish red color → Blue Residue ← evap.

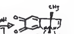
NB on eserine

Eserine is unstable:
- alkaline H_3O^+ → eseroline + methyl amine + CO_2



(eseroline)

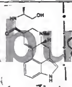
- NaOH →



(Rubreserine)

④ Ergot alkaloids

① Ergometrine



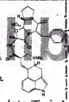
(ergometrine)

→ Soluble in H_2O
H_3O^+ → 2 amino propanol + lysergic ā

Uses:
① Cause contraction of uterus, So used as:
ⓐ oxytocic (to aid delivery)
ⓑ prevent post partum hemorrhage

→ It has certain advantages over the water insoluble ergot alkaloids: as → not produce nausea & vomiting, → has oxytocic effect

② Ergotamine



(ergotamine)

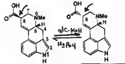
→ Insoluble in H_2O
H_3O^+ → lysergic ā + pyruvic ā + D-proline + P-phenylalanine

Uses: ① analgesic for Migraine**

Source → Ergot Fungus

Notes on ergot alkaloids

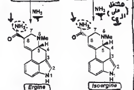
Ⓘ Ergot alkaloids $\xrightarrow{\text{contain}}$ N-monosubs. amide deriv. of lysergic ā & isolysergic ā; 12 major alkaloids (6 pairs)



alc. KOH / H_3PO_4

(-)-Lysergic acid — (+)-Isolysergic acid

lysergic ā derivatives	Isolysergic ā derivatives
(eg) ergotamine and ergometrine ↓ ↑ Active, levorotatory, -ine	(eg) ergotaminine and ergometrinine ↓ active, Dextrorotatory, inine



Ergine — Isoergine

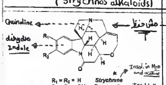
① Active ergot alkaloids $\xrightarrow{\text{light/UV light}}$ Inactive Lumi derivatives
(Fluorescent cpds) — (non Fluorescent cpds)

② LSD (lysergic acid diethylamide) is → synthetic cpd (↑ Hallucinogenic effect)

Test: ① Van-Urk's Test:-
alk. soln + Van-Urk's reagent → deep Blue color
(PDAB + 15% H_2SO_4 + $FeCl_3$)

Estimation of ergot alkaloids by:
① Colorimetrically
② Fluorimetrically

⑤ Nux Vomica alkaloids (Strychnos alkaloids)



$R_1 = R_2 = H$ — Strychnine — Insol. in H_2O and active
$R_1 = R_2 = OMe$ — Brucine* — Insol. in H_2O → sol. in active

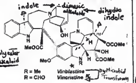
in → Nux vomica seed

Uses:
Strychnine:
① CNS stimulant and Tonic.
② antidote for Barbiturate Poisoning
③ Rodenticide ④ Toxic

Brucine:
① alcohol and oil deodorant
② additive agent to lubricants
③ less Toxic

Tests:
① Strychnine + Mandalin's → Violet
② Brucine + $SnCl_2$ → Violet

⑥ Vinca alkaloids (Catharanthus alkaloids)



indole – dimeric alkaloids – dihydro indole
Polyester alkaloid
R = Me — Vinblastine
R = CHO — Vincristine
by microbial transformation

in → Vinca herb

Uses:
Vinblastine:
① TT of Hodgkin's disease and Carcinoma.
② anticancer (cytotoxic effect)

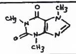
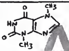
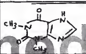
Vincristine:
① TT of Childhood Leukemia
② anticancer (cytotoxic effect)

Tests:
① Vinblastine + Vanillin/HCl → Pink color
Vincristine + Vanillin/HCl → orange-yellow color
② Van Urk's Test (for both) → Reddish brown color.

Semi-synthesis deriv of Vinca alkaloids

ⓐ Vinorelbine	ⓑ Vindesine
→ obtained by dehydrn of Vinblastine	→ amide derivative of Vinblastine
Uses: → Oral anticancer ē broader activity and ↓ neurotoxicity than vinblastine	→ TT of acute lymphoid leukemia in children

VIII Purine alkaloids.

① Caffeine	② Theobromine	③ Theophylline
		

← Tea (Leaves), Coffee (Seeds), Cacao (Seeds) →

General Properties →
- ① weak base → Form salt only ē strong acids
- ② give no ppt ē mayer's Test
- ③ give brown ppt ē wagner's Test
- ④ give +ve ē Murexide Test
- ⑤ sublimate without decompositn

	Caffeine	Theobromine	Theophylline
Solubility	① Sol. in H_2O and Benzene	① slightly sol. in H_2O ② Insol. in Benzene and NH_4OH	① Sol. in H_2O and NH_4OH ② Insol. in Benzene
Uses	① CNS stimulant ② relief Headache	① Diuretic	① smooth muscle relaxant → Bronchodilator

Test

① Murexide Test → alk. + C.HCl + $KClO_3$ $\xrightarrow[WB]{evap.}$ Red Color $\xrightarrow[vapor]{NH_3}$ violet color (+ve For all)

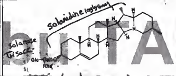
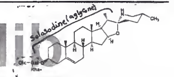
② Tannic ā Test → alk. soln + Tannic ā → white ppt (dissolve in XSS reagent) (+ve For ① , ③)

③ $FeSO_4$ Test → alk. soln + C.HCl + Br_2/H_2O + $FeSO_4$ + NH_3 → Blue Color (+ve For ②)

Separation of ① ② ③ mix

mix + Benzene $\xrightarrow{Filter}$
- Ⓕ (caffeine)
- Ⓡ (theobromine , theophylline) → NH_4OH, Filter:
  - Ⓕ (theophylline)
  - Ⓡ (theobromine)

IX Steroidal alkaloids → Solanum alkaloids / → Glyco alkaloids.

① Solanine	② Solasonine (solanocapine)
	
(Solanine)	(Solasonine)

← Solanum species →

Solanine	Solasonine
→ insol. in H_2O → Sol. in amyl (or) ethyl alcohol	→ sol. in H_2O → Form Jelly on Cooling
$\xrightarrow{H^+/H_3O^+}$ Solanidine + D-glucose + D-galactose + L-Rhamnose	$\xrightarrow{H^+/H_3O^+}$ Salasodine + D-glucose + D-galactose + L-Rhamnose

Uses

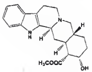
→ Starting material For the synthesis of steroidal drugs (aglycone part is used)

Test

Solanine	Solasonine
① + Marqui's reagent → yellow color → violet Color	① + Marqui's reagent → Red Color
② + Mandelin's reagent → orange color → violet Color	② + $SbCl_3$ → Red Color

XI Carboline alkaloids

① Yohimba alkaloids



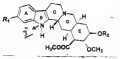
(Yohimbine)

in → Yohimba bark

Uses → Aphrodisiac

Test
① + C.H_2SO_4 + $K_2Cr_2O_7$ → violet streaks → Blue → green

② Rauwolfia alkaloids



	R_1	R_2
*Reserpine	OCH_3	Trimethoxybenzoyl*
Rescinnamine	OCH_3	Trimethoxycinnamyl
Deserpidine	H	Trimethoxybenzoyl

in → Rauwolfia Root

Uses
- → antihypertensive (Hypotensive)
- → Traquilizers

Properties of Reserpine
- ① levorotatory
- ② weak base diester alkaloid
- ③ Insol. in H_2O but sol. in $CHCl_3$
- ④ soln $\xrightarrow{acid}$ yellow soln and Fluorescence

وختامه مسك

أتمنى من المولى أنى ألون قد ساعدت ولو بشئ يسير فى تسهيل المذاكرة عليكم لذلك لا تنسونى بدعوة صالحة بظهر الغيب . ولو أحد منكم أحتاج أى شئ فأنا تحت أمره

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→ dr_aha2013@yahoo.com
→ 0104668687

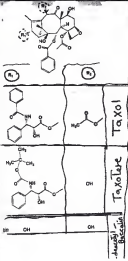
H_3O^+ of Rauwolfia alkaloids / مهم

① *Reserpine $\xrightarrow{H_3O^+}$ Reserpic acid + Methanol + Trimethoxy benzoic ā

② *Rescinnamine $\xrightarrow{H_3O^+}$ ~~ + ~~ + Trimethoxy cinnamic ā

③ Deserpidine → Deserpic acid + Methanol + Trimethoxy benzoic ā

X Diterpene alkaloids



eg → **Taxol**

in → Taxus brevifolis (yew tree, death tree)

Uses → ① anticancer → TTT of ovarian cancer / → TTT of neck, lung & breast cancer

Mode of Action → induce the polymerizatn of the protein Tubulin To Form stable non-Fxn microtubules which → stop cell division (mitosis) in the cancer cell

Related cpd of pharmaceutical importance

[i] Taxotere	[ii] 10-deacetyl Baccatin III
→ H_2O-soluble → semisynthetic deriv. of taxol → used for ovarian and	→ used as starting material For synthesis of Taxol